

CLAIM AMENDMENTS

In the following claims, which include all the claims in this application, claims 1 and 2 are amended, and new claims 3 through 47 are added.

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1. (currently amended) A method for controlling at least one drive train component of a motor vehicle which has a drive apparatus as well as a clutch apparatus arranged in the drive train, an engine control device, and a clutch control device, said method comprising the steps of:

a) controlling the position of at least ~~one~~ a first predetermined component of the drive apparatus by the engine control device, whereby at least a first operating parameter of the drive train is controlled by the engine control device;

b) controlling the position of at least ~~one~~ a second predetermined component of the clutch apparatus by the clutch control device, whereby at least a second operating parameter of the drive train is controlled by the clutch control device; and

c) ~~transferring~~ transmitting predetermined signals between the engine control device and the clutch control device, which signals affect the control activities of at least one ~~control device~~ of those control devices; and

d) maintaining below a predetermined difference limit a difference between an actual engine rotational speed gradient and a predetermined output side drive train rotational speed gradient by regulating the engine rotational speed gradient at a transition between a startup phase and a drive phase of the vehicle.

2. (currently amended) A control device for control of at least one parameter of a motor vehicle drive train that includes a drive apparatus as well as a clutch apparatus arranged in the drive train, ~~an engine control device, and a clutch control device,~~ said control device comprising:

a) an engine control device for controlling the position of at least one predetermined component of the drive apparatus;

b) a clutch control device for controlling the position of at least one predetermined component of the clutch apparatus; and

c) a gradient regulator for ~~causing the~~ maintaining a difference between an engine rotational speed gradient and a transmission output-side rotational speed gradient to be smaller than a predetermined rotational speed gradient difference and to approach each other at an end of a ~~start-up~~ starting phase of the vehicle.

3. (new) A method for controlling at least one drive train component of a motor vehicle which has a drive apparatus as well as a clutch apparatus arranged in the drive train, an engine control device, and a clutch control device, said method comprising the steps of:

a) controlling the position of at least a first predetermined component of the drive apparatus by the engine control device, whereby at least a first operating parameter of the drive train is controlled by the engine control device;

b) controlling the position of at least a second predetermined component of the clutch apparatus by the clutch control device, whereby at least a second

operating parameter of the drive train is controlled by the clutch control device;

c) providing by at least one of the control devices at least a part of its control characteristic to the other control device; and

d) maintaining below a predetermined difference limit a difference between an actual engine rotational speed gradient and a predetermined output side drive train rotational speed gradient by regulating the engine rotational speed gradient at a transition between a startup phase and a drive phase of the vehicle.

4. (new) A method for controlling at least one drive train component of a motor vehicle which has a drive apparatus as well as a clutch apparatus arranged in the drive train, an engine control device, and a clutch control device, said method comprising the steps of:

a) controlling the position of at least a first predetermined component of the drive apparatus by the engine control device, whereby at least a first operating parameter of the drive train is controlled by the engine control device;

b) controlling the position of at least a second predetermined component of the clutch apparatus by the clutch control device, whereby at least a second operating parameter of the drive train is controlled by the clutch control device;

c) conducting by one control device of predetermined control activities as a function of control activities of the other control device ; and

d) maintaining below a predetermined difference limit a difference between an actual engine rotational speed gradient and a predetermined output

side drive train rotational speed gradient by regulating the engine rotational speed gradient at a transition between a startup phase and a drive phase of the vehicle.

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5. (new) A method for controlling at least one drive train component of a motor vehicle which has a drive apparatus as well as a clutch apparatus arranged in the drive train, an engine control device, and a clutch control device, said method comprising the steps of:

a) controlling the position of at least a first predetermined component of the drive apparatus by the engine control device, whereby at least a first operating parameter of the drive train is controlled by the engine control device;

b) controlling the position of at least a second predetermined component of the clutch apparatus by the clutch control device, whereby at least a second operating parameter of the drive train is controlled by the clutch control device;

c) coordinating control activities of the control devices under predetermined conditions by means of a priority characteristic; and

d) maintaining below a predetermined difference limit a difference between an actual engine rotational speed gradient and a predetermined output side drive train rotational speed gradient by regulating the engine rotational speed gradient at a transition between a startup phase and a drive phase of the vehicle.

6. (new) A method for controlling at least one drive train component of a motor vehicle which has a drive apparatus as well as a clutch apparatus arranged in the drive train, an engine control device, and a clutch control device, said method comprising the steps of:

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a) controlling the position of at least a first predetermined component of the drive apparatus by the engine control device, whereby at least a first operating parameter of the drive train is controlled by the engine control device;

b) controlling the position of at least a second predetermined component of the clutch apparatus by the clutch control device, whereby at least a second operating parameter of the drive train is controlled by the clutch control device;

c) indicating by one of the control devices under predetermined conditions by means of a signal to the other control device that the one control device is regulating a predetermined operating parameter of the drive train; and

d) maintaining below a predetermined difference limit a difference between an actual engine rotational speed gradient and a predetermined output side drive train rotational speed gradient by regulating the engine rotational speed gradient at a transition between a startup phase and a drive phase of the vehicle.

7. (new) A method for controlling at least one drive train component of a motor vehicle, said method comprising the steps of:

a) controlling predetermined operating parameters of an engine of the motor vehicle in accordance with a start-up characteristic during a starting phase

of the motor vehicle;

b) controlling predetermined operating parameters of the engine in accordance with a driving characteristic during a driving phase of the motor vehicle;

c) regulating one of the engine rotational speed and the engine rotational speed gradient during a start-up phase of the motor vehicle; and

d) maintaining below a predetermined difference limit a difference between an actual engine rotational speed gradient and a predetermined output side drive train rotational speed gradient by regulating the engine rotational speed gradient at a transition between the starting phase and the driving phase of the vehicle.

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8. (new) A method for controlling at least one drive train component of a motor vehicle, said method comprising the steps of:

a) controlling predetermined operating parameters of an engine of the motor vehicle in accordance with a start-up characteristic during a starting phase of the motor vehicle;

b) controlling predetermined operating parameters of the engine in accordance with a driving characteristic during a driving phase of the motor vehicle;

c) specifying a predetermined rotational speed under load to be controlled when the engine rotational speed and a transmission rotational speed are substantially identical at the end of the starting phase;

d) maintaining a rotational speed differential between the engine rotational speed under load and the engine rotational speed at the end of the starting phase equal to the transmission rotational speed and greater than zero; and

e) maintaining below a predetermined difference limit a difference between an actual engine rotational speed gradient and a predetermined output side drive train rotational speed gradient by regulating the engine rotational speed gradient at a transition between the starting phase and the driving phase of the vehicle.

9. (new) A method for controlling at least one drive train component of a motor vehicle, said method comprising the steps of:

a) controlling predetermined operating parameters of an engine of the motor vehicle in accordance with a start-up characteristic during a starting phase of the motor vehicle;

b) controlling predetermined operating parameters of the engine in accordance with a driving characteristic during a driving phase of the motor vehicle;

c) specifying a predetermined rotational speed under load to be controlled when the engine rotational speed and a transmission rotational speed are substantially identical at the end of the starting phase;

d) maintaining one of the engine rotational speed and the transmission rotational speed so that it does not substantially exceed the specified rotational

speed under load until the engine rotational speed and the transmission rotational speed jointly reach the specified speed under load; and

e) maintaining below a predetermined difference limit a difference between an actual engine rotational speed gradient and a predetermined output side drive train rotational speed gradient by regulating the engine rotational speed gradient at a transition between the starting phase and the driving phase of the vehicle.

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10. (new) A method according to claim 1, including the step of predetermining a target engine rotational speed.

11. (new) A method according to claim 10, wherein the target engine rotational speed is a function of an accelerator pedal position.

12. (new) A method according to claim 1, including the step of providing a target engine rotational speed gradient as a function of a predetermined third operating parameter.

13. (new) A method according to claim 1, including the step of providing a target engine rotational speed gradient is specified as a function of the target engine rotational speed.

14. (new) A method according to claim , wherein a target engine

rotational speed gradient as a function of an actual engine rotational speed.

15. (new) A method according to claim 1, including the step of providing a target engine rotational speed gradient as a function of a predetermined rotational speed differential.

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16. (new) A method according to claim 1, including the step of providing a target engine rotational speed gradient as a function of an output-side rotational speed gradient.

17. (new) A method according to claim 1, including the step of providing a target engine rotational speed gradient as a function of a superimposition characteristic.

18. (new) A method according to claim 1, including the step of providing a target engine rotational speed gradient as a function of a predetermined rotational speed ratio of an output-side rotational speed and an engine rotational speed.

19. (new) A method according to claim 17, wherein the superimposition characteristic is a function of a predetermined rotational speed ratio based on an output-side rotational speed and an engine rotational speed.

20. (new) A method according to claim 17, wherein the superimposition characteristic is such that the gradient of an output-side rotational speed is considered in determining the target engine rotational speed gradient as a function of a predetermined characteristic.

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21. (new) A method according to claim 17, wherein the superimposition characteristic is such that the gradient of an output-side rotational speed is considered in determining the target engine rotational speed gradient as a function of a rotational speed quotient from an output-side rotational speed and an engine rotational speed.

22. (new) A method according to claim 16, wherein the target engine rotational speed gradient increases with an increase of the output-side rotational speed gradient.

23. (new) A method according to claim 1, wherein a target engine rotational speed gradient as a function of the sum of a function of a rotational speed differential and a function of an output-side rotational speed gradient.

24. (new) A method according to claim 1, including the step of determining a pre-control component of an engine target torque in accordance with a predetermined characteristic curve.

25. (new) A method according to claim 24, wherein a signal indicative of an engine actual torque is utilized for determining the engine target torque.

26. (new) A method according to claim 1, including the step of determining an engine target torque as a function of at least one engine rotational speed.

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27. (new) A method according to claim , including the step of determining an engine target torque as a function of at least one engine rotational speed gradient.

28. (new) A method according to claim 1, including the step of determining a clutch target torque as a function of at least one engine rotational speed gradient.

29. (new) A method according to claim 1, including the step of determining an engine target torque utilizing a regulator.

30. (new) A method according to claim 1, including the step of determining the output-side rotational speed by calculation.

31. (new) A method according to claim 1, including the step of determining the output-side rotational speed by measurement.

32. (new) A method according to claim 1, wherein the engine control device makes available a value of engine torque that is being utilized.

33. (new) A method according to claim 32, wherein the engine torque utilized is a function of a filtered signal from the engine control device.

34. (new) A method according to claim 32, wherein the engine torque utilized is a function of a signal from the engine control device, whereby the gradient of that engine torque is restricted.

35. (new) A method according to claim 1, wherein the control devices at all times exchange signals with an overriding control device, and that overriding control device effects a coordination of the control activities of those control devices.

36. (new) A method according to claim 1, wherein in at least one of the control devices in which at least a part of the control characteristic of the other of those control devices is made available, that part of the control characteristic of the other of those control devices is stored.

37. (new) A method according to claim 1, wherein at least one of the control devices in which at least a part of the control characteristic of the other of

those control devices is made available, controls at least one parameter as a function of an available portion of the control characteristic, whereby that available portion of the control characteristic of the other control device is stored in that control device.

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38. (new) A method according to claim 1, wherein at least one of the control devices uses an operating parameter to control an operating parameter controlled by that control device which can be controlled by the other of those control devices and/or which is brought about by the position of at least a predetermined structural component.

39. (new) A method according to claim 1, wherein at least one of the control devices refrains under predetermined conditions from a desired control of a parameter as a function of at least one signal that is transmitted from the other of those control devices to that control device.

40. (new) A method according to claim 1, wherein control activities of one of the clutch control device and of the engine control device in any given case attempts to simultaneously affect a drive train parameter then being controlled by the other control device, then the control activities of particular attempting control device are omitted.

41. (new) A method according to claim 1, wherein the engine control

device and the clutch control device do not simultaneously govern the same operating parameter of the drive train.

42. (new) A method according to claim 1, wherein control activities of the engine control device and of the clutch control device are coordinated in accordance with a predetermined master-slave method.

43. (new) A method according to claim 1, wherein the signals transmitted between the engine control device and the clutch control device are electrical signals.

44. (new) A method according to claim 1, wherein the first operating parameter is the engine rotational speed.

45. (new) A method according to claim 1, wherein the clutch control device brings about a change in one of the engine rotational speed and the engine torque.

46. (new) A method according to claim 1, wherein influence of engine rotational speed by means of the clutch control device is prevented when the drive apparatus is operated in an idling phase.

47. (new) A method according to claim 1, wherein the engine control

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device and the clutch control device do not simultaneously control the engine rotational speed when the engine control unit, under predetermined first conditions, issues a signal to control the engine rotational speed, and the clutch control unit, under predetermined second conditions, issues a signal control the engine rotational speed.
